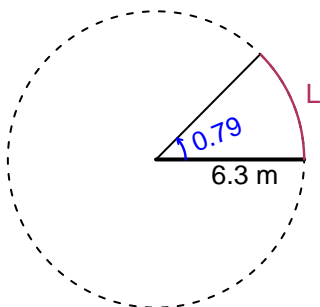# Trig Final (Practice v11)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The angle measure is 0.79 radians. The radius is 6.3 meters. How long is the arc in meters?
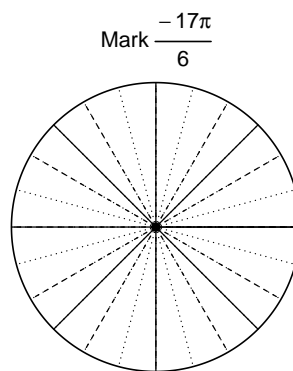

Question 2

Consider angles $\frac{11\pi}{4}$ and $\frac{-17\pi}{6}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\cos\left(\frac{11\pi}{4}\right)$ and $\sin\left(\frac{-17\pi}{6}\right)$ by using a unit circle (provided separately).

Mark $\frac{11\pi}{4}$

Mark $\frac{-17\pi}{6}$

Find cos(11π/4)
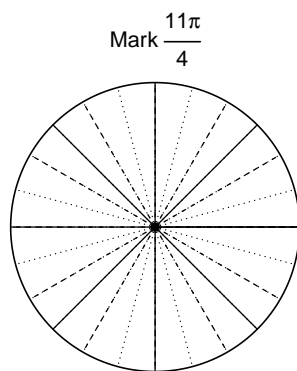
Find sin(−17π/6)

Question 3

If $\tan(\theta) = \frac{-72}{65}$, and θ is in quadrant IV, determine an exact value for $\cos(\theta)$.

Question 4

A mass-spring system oscillates vertically with an amplitude of 4.31 meters, a frequency of 3.1 Hz, and a midline at $y = -5.36$ meters. At $t = 0$, the mass is at the midline and moving up. Write an equation to model the height (y in meters) as a function of time (t in seconds).